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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,336	02/28/2002	Dieter Kerner	39509-177800	5608
26694	7590	05/19/2004	EXAMINER	
VENABLE, BAETJER, HOWARD AND CIVILETTI, LLP			ROBERTSON, JEFFREY	
P.O. BOX 34385				
WASHINGTON, DC 20043-9998			ART UNIT	PAPER NUMBER

1712

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/084,336	KERNER ET AL.	
	Examiner	Art Unit	
	Jeffrey B. Robertson	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-9 is/are rejected.
- 7) ☒ Claim(s) 3-9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: In the specification on pages 3 and 4, under f) and g) in the definition of R''', what does "A" mean?

Appropriate correction is required.

Claim Objections

2. Claims 3-9 are objected to because of the following informalities:
For claim 3, in line 1, "[t]he" should be deleted since the claim is now an independent claim. Also for claim 3, under d) and e), there should be a conjunction between alkyl, cycloalkyl in the definition of R'. Under h) in the definition of R', the period after aryl should be deleted since periods are reserved to indicate the end of a claim. Under m), the Y definition should all be placed together so that it is clear that the groups present under the formula are part of the Y definition. In addition, the second occurrence of "Y=" should be deleted.

Also for claim 3, in subsection (l), the structures of D3 and D5 should appear in the claim to be consistent with the fact that the structure of D4 appears in the claim.

For claim 8, the word "type" before D4 should be deleted. Appropriate correction is required.

3. Claim 9 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper

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dependent form, or rewrite the claim(s) in independent form. Claim 8 sets forth that the cyclic polysiloxane is D4. In claim 3, under (l), D4 is already defined as octamethylcyclotetrasiloxane. Therefore, claim 9 does not further limit the parent claims.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 3-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 3, under f), h), i), and (j), applicant has added the phrase "wherein x is one or more" after the group $-S_x-(CH_2)_3Si(OR)_3$. There is no support for this change in the specification. The specification does not define "x" in $-S_x-(CH_2)_3Si(OR)_3$.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 3-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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For claim 3, under subsection g), x is not defined in the group $-S_x-(CH_2)_3Si(OR)_3$.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3, 4 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deller et al. (U.S. Patent No. 5,776,240) in view of Mangold et al. (CA 2,223,377).

For claim 3, in column 1, line 48, through column 2, line 5, Deller teaches that pyrogenically prepared silicon dioxide is silanized with alkoxy silanes, silazanes, and or siloxanes. For claims 3, 8, and 9, Deller teaches in column 4, lines 15-28, that octamethylcyclotetrasiloxane is used as the siloxane for silanizing the silicon dioxide. For claims 4, 6, and 7, Deller teaches in column 10, lines 28-35, that the granules are sprayed with water prior to being treated with silanizing agent, treated with the silanizing agent, allowed to mix for 15 to 30 more minutes, and then heated for 1 to 4 hours at 100 to 400°C. Deller fails to teach that the pyrogenically produced oxides are doped by aerosol.

Mangold teaches pyrogenically produced oxides that are doped, including silicon dioxide on page 3, lines 18-22. On page 2, lines 5-22, Mangold teaches that the oxides are doped by aerosol.

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Mangold and Deller are analogous art in that they come from the same field of endeavor, namely the use of pyrogenically prepared oxides as catalyst supports. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the oxides in the treatment process of Deller. The motivation would have been that Mangold states that the doped pyrogenically prepared oxides have advantages over the non-doped oxides on page 15, lines 8-16. These advantages are in the form of larger cohesive structures, increased sediment volume, and a greatly increased efficiency value. One of ordinary skill in the art would have been motivated by the improvement in these properties in using the doped oxides of Mangold.

10. Claims 3, 5, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laüfer et al. (U.S. Patent No. 4,022,152) in view of Mangold et al. (CA 2,223,377).

For claims 3, 5, 8, and 9, in column 8, lines 57-61, Laüfer teaches a pyrogenic silicic acid (SiO_2) is treated with octamethyltetrasiloxane. For claim 5, in column 3, lines 59-68, Laüfer discloses that the fillers produced are used in silicone rubbers for a greater thickening effect. Laüfer fails to teach that the pyrogenic silica is doped by aerosol.

Mangold teaches pyrogenically produced oxides that are doped, including silicon dioxide on page 3, lines 18-22. On page 2, lines 5-22, Mangold teaches that the oxides are doped by aerosol.

Mangold and Laüfer are analogous art in that they come from the same field of endeavor, namely the use of pyrogenically prepared oxides as fillers. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the

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oxides in the treatment process of Laüfer. The motivation would have been that Mangold states that the doped pyrogenically prepared oxides have advantages over the non-doped oxides on page 15, lines 8-20 including an increase in thickening effect. One of ordinary skill in the art would have been motivated by the improvement in thickening effect in substituting the doped oxides of Mangold for the oxides used in Laüfer.

Response to Arguments

11. Applicant's arguments filed 9/30/03 have been fully considered but they are not persuasive. Regarding the inserted definition for "x" in S_x , the examiner disagrees that there is support for this definition in the specification. Applicant argues that the formula suggests the desired valence for "S" as well as its presence in integral amounts as repeats, i.e. one or more. The examiner finds no such support in the specification. Applicant has set forth no evidence that the definition of "one or more" is present in the specification.

Regarding the rejection under 35 U.S.C. §103(a) of claims 3, 4, and 6-9 as being unpatentable over Deller et al. (U.S. Patent No. 5,776,240) in view of Mangold et al. (CA 2,223,377), applicant argues that it is stated in Deller that the particle size for the supports is less than 5 nm. The examiner disagrees with this interpretation of the Deller reference. The only reference to sizes of less than 5 nm is in reference to the pore size distribution, where less than 5% of the total pore volume exists as pores with less than 5 nm. See Deller, col. 1, lines 51-67, col. 6, lines 19-27. Deller clearly teaches that the particle sizes may vary over a wide range. See col. 7, lines 35-40. Thus, the examiner

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disagrees with applicant's reasoning that one of ordinary skill in the art would not have modified the oxides of Deller by doping because particle sizes greater than 5 nm are not desired.

Applicant also argues that neither Mangold nor Deller mentions what effect the addition of other chemical or mechanical treatments would have on the benefits of each of the patents. Applicant states that due to a certain degree of unpredictability in the chemical arts, it is not clear if the distinct treatments are compatible, what step sequence needs to be followed in order for them to be compatible, or whether the taught benefits of each of the references would be impacted by the presence of other materials. In response, the examiner notes that there is no express teaching in either of these references that would lead one of ordinary skill in the art to believe that combining the two treatments would be incompatible or that the benefits of each treatment would not be obtained through the combination of the two. Thus one of ordinary skill in the art would have a reasonable expectation of success that these treatments would be compatible.

Applicant also argues that the examiner has relied only on applicant's disclosure to suggest the combination of references. As stated in the previous office action, the examiner disagrees. The references themselves provide sufficient motivation as detailed in the above rejection. The examiner has not relied on applicant's specification to arrive at the present combination of references. Therefore, the rejection under 35 U.S.C. §103(a) of claims 3, 4, and 6-9 as being unpatentable over Deller et al. (U.S. Patent No. 5,776,240) in view of Mangold et al. (CA 2,223,377) is continued.

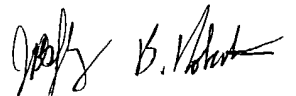
Regarding the rejection under 35 U.S.C. §103(a) of claims 3, 5, 8, and 9 as being unpatentable over Laufer et al. (U.S. Patent No. 4,022,152) in view of Mangold et al. (CA 2,223,377), applicant argues that there is no suggestion within either of the references that an aerosol doping step can be combined with a continuous surface modification process. In response, the examiner's position is that the doping treatment would be performed prior to the start of the continuous process in which the surface modification takes place. In other words, the doped oxides would be the starting material in the continuous process for surface modification. Applicant also argues that the processes in claim 4 and claim 6 are not suggested by the references. In response, it is noted that these claims were not rejected over these references. In addition, applicant argues that the examiner has relied only on applicant's disclosure to suggest the combination of references. As stated in the previous office action, the examiner disagrees. The references themselves provide sufficient motivation as detailed in the above rejection. The examiner has not relied on applicant's specification to arrive at the present combination of references. One of ordinary skill in the art is not required to have "assurances of success". Only a reasonable expectation of success is required. Therefore, the rejection under 35 U.S.C. §103(a) of claims 3, 5, 8, and 9 as being unpatentable over Laufer et al. (U.S. Patent No. 4,022,152) in view of Mangold et al. (CA 2,223,377) is continued.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey B. Robertson whose telephone number is (571) 272-1092. The examiner can normally be reached on Mon-Fri 7:00-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jeffrey B. Robertson
Primary Examiner
Art Unit 1712

JBR